

Claims

What is claimed is:

- 5 1. A method of coating a surface of an aluminum article comprising the steps of:
providing an anodized coating on the surface of the aluminum article;
sealing pores of the anodized coating;
electrocoating a layer of a thermosetting cationic acrylic resin over the
anodized coating; and
10 thermally curing the thermosetting cationic acrylic resin wherein the anodized
coating maintains continuity during curing of the thermosetting cationic acrylic resin.
2. The method as defined in claim 1 wherein the anodized coating is provided at a
temperature between substantially about 20 to 30°C, at a voltage of substantially about
15 10 to 15V, and at an electrolyte concentration of substantially about 10 to 15% by
volume for enabling continuity of the anodized coating during curing of the
thermosetting cationic acrylic resin.
3. The method as defined in claim 2 wherein the electrolyte is sulfuric acid.
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4. The method as defined in claim 1 wherein the thermosetting cationic acrylic resin
is a clear resin.
5. The method as defined in claim 4 wherein the thermosetting cationic acrylic resin
25 comprises polyurethane.
6. The method as defined in claim 4 wherein the thermosetting cationic acrylic resin
comprises a UV stabilizer.

7. The method as defined in claim 4 wherein the step of curing is performed at a temperature of substantially about 163-177°C for substantially about 20 to 50 minutes.
8. The method as defined in claim 1 further comprising the step of coloring the aluminum article after providing the anodized coating and prior to sealing pores of the anodized coating.
9. The method as defined in claim 8 wherein the step of coloring is an electrolytic coloring step.
10. The method as defined in claim 9 wherein the electrolytic coloring step is performed using a metal salt as a colorant.
11. The method as defined in claim 10 wherein the metal salt is selected from the group consisting of cobalt sulfate and tin sulfate.
12. The method as defined in claim 8 wherein the step of coloring is performed using one of a black and blue dye so as to provide a chrome-like appearance.
13. An aluminum article having a protective coating made by the method of claim 1.
14. A method of providing a protective coating for automotive trim pieces comprising the following steps:
- anodizing the aluminum article at a temperature between substantially about 20 to 30°C, at a voltage of substantially about 10 to 15V, and at an electrolyte concentration of substantially about 10 to 15% by volume for providing a layer of aluminum oxide, said layer of aluminum oxide being a porous layer;
- sealing the porous layer of aluminum oxide for providing a sealed layer of aluminum oxide;
- electrocoating the sealed layer of aluminum oxide with a thermosetting cationic acrylic resin; and
- thermal curing the thermosetting cationic acrylic resin.

15. The method as defined in claim 14 wherein the thermosetting cationic acrylic resin is a clear resin.
- 5 16. The method as defined in claim 14 further comprising the step of electrolytic coloring the porous layer of aluminum oxide prior to the step of sealing the porous layer of aluminum oxide.
- 10 17. The method as defined in claim 16 wherein the step of electrolytic coloring is performed using a metal salt.
18. The method as defined in claim 17 wherein the metal salt is selected from the group consisting of cobalt sulfate and tin sulfate.
- 15 19. An automotive trim piece having a protective coating, said protective coating comprising:
- an aluminum or aluminum alloy base metal;
 - a layer of aluminum oxide provided over top of said aluminum or aluminum alloy base metal;
 - 20 an electrocoat layer provided over top of said layer of aluminum oxide, said electrocoat layer comprising a clear thermosetting cationic acrylic resin, said layer of aluminum oxide having a degree of softness so as to maintain a continuous layer of aluminum oxide when the electrocoat layer is thermally cured.
- 25 20. The automotive trim piece as defined in claim 19 further comprising an electrolytic colorant in the layer of aluminum oxide.